individual clinician holds the whole budget—such as his own time. It is probably less easy to see for other categories of resource; who knows what the cost of requesting an extra diagnostic test is? It certainly does not mean that another patient goes without a test, but it may add to overall delays or cause more resources to be devoted to the service department concerned and taken away from other clinical services. In short, once we acknowledge that more than one patient is affected by a clinical action it is not unethical to consider costs.

Conclusions

The mechanisms for building cost-benefit thinking into individual clinical actions are not well developed. Many clinicians are not aware of these notions, however, and more information about the implied costs of alternative clinical actions might result in a change in practice if the appropriate mechanisms for bringing about such changes existed. We mentioned in an earlier article the importance of budgeting and its extension into clinical areas.[3] There are already a number of experiments in progress. Clinical teams may be given an incentive to save resources by being allowed to redeploy a proportion of the amount saved. In addition, the information gathered on clinical workload and use of resources can form a basis for agreements on how services should develop in the future.[4 5] In some other countries governments have encouraged the medical profession to derive guidelines for health care practice, which have as one of their aims the more cost-effective use of health care resources.[6] At the local level there is no reason why cost-effectiveness considerations should not be brought into discussions of medical policy.

Part VI of the series will be published next week.

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Letters to a Young Doctor

Moving up the registrar ladder

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The jump from registrar to senior registrar can be the most difficult of all, for the structure of the grades in the National Health Service has been allowed to get out of hand. This has just happened because consultants have looked for help with their service work from junior staff, and they have wished to have juniors of some degree of competence—namely, at registrar level. It was not easy to see where this would lead, but now unfortunately we know: it leads to registrars in dead-end jobs from which the only escape seems to be into unemployment. Someone has to do the clinical work, and yet the registrar post is meant for training and so should be vacated every two or, at most, three years. So, there is constant tension between service and training, which is largely of the medical profession's own making.

It has been agreed that the only normal career grade in hospital shall be that of consultant and that there shall be no sub-consultant grade to carry out the daily chores of clinical work. It is a legitimate viewpoint, which is laudable because it safeguards the profession—until one sees the results of the system for those who are (*a*) unable to get to the consultant grade for a variety of reasons and (*b*) at the same time are unable to stay in a training post because it is needed for someone else and must be vacated after a certain time. It is regrettable that more and more doctors are caught in this situation. They have to move on, and there is no place to go. By using some foresight and planning one should be able to avoid getting caught.

To assess the prospects of moving from a post as registrar to senior registrar you have to look again at the main tables in "Medical and dental staffing and prospects in the NHS in England and Wales," an analysis of hospital posts by specialty, sex, and grade, published once a year in *Health Trends* (see May 1982 issue, volume 14). By dividing the number of senior registrars in the discipline by four (the assumed number of years in post) you get a rough estimate of the likely number of vacancies. The number of registrars in the same discipline should be divided by two to get a rough estimate of those likely to be ready to proceed to senior registrar. For instance, traumatic and orthopaedic surgery has 136 senior registrars, giving, say, 34 vacancies a year for the roughly 19 likely consultant vacancies. And there are 358 registrars, which could mean about 180 people available for the 34 vacancies at senior registrar level, a ratio of 5 or 6 to 1. You must decide whether you accept this degree of competition or not. You must work it out for yourself in your intended discipline.

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Choices

Entering into your estimates of likely competition must be other factors. Firstly, not everyone in general medicine, particularly, intends to carry on in the subject. Some will hive off into specialties of medicine, some will head for pathology, and some for general practice. This reduces competition in the "mainstream," but it is not possible to estimate with accuracy by how much. In general surgery the problem is the same. Many will go to surgical specialties, but the competition is transferred to these specialties. Even from obstetrics and gynaecology many will move to general practice or paediatrics. There is more obvious specialisation in many other subjects. There is no harm, as I mentioned before, in trying out a very special subject, even at registrar level. But if you do not like it as well as something else, or if the opportunities seem to be unduly restricted for you, then pull out of it early, say after a year. The next appointment committee you attend will understand a wish to change your mind but not if it has taken you years to do it: that does not augur well for your making clinical decisions.

In some ways the safest advice to give you, unless you are sure of what you want to do, is to go for the MRCP(UK)—membership of the Royal College of Physicians. This may take two or three years after full registration, and may be done in a specially constructed rotation of jobs, which gives you experience of general medicine and a few specialties. Take part I as early as possible because it still has a large basic science component, much of which you will remember from undergraduate days, but which is easy to forget. Getting part I frees you to get on with the clinical work and experience that you will need for part II. The academic and practical aspects are then running together, making study and recall easier. When you have passed the MRCP examination it is possible to switch to a definitive career, for it opens the way into general practice, paediatrics, pathology (exempting from part I MRCPath), radiology, and all the specialties of medicine, and gives a boost to such subjects as anaesthesia and psychiatry. If at this stage you are still unsure what you want to do, try to continue as a registrar in general medicine or at least in something approaching it in generality.

You must realise that it may become more and more difficult to obtain consultant posts in a pure medical specialty, such as cardiology, neurology, chest medicine, rheumatology, or even geriatrics. There seems to be a tendency to appoint physicians to district general hospitals as generalists with a special interest in a medical specialty, rather than as a pure specialist. This is because no district general hospital can afford to have on its staff the number of physicians to cover the total range of medical specialties if none of them is trained to cope with general medicine. It is therefore wise to keep some contact with general medicine during training, but it is difficult to decide the ultimate marketability of the various medical specialties. You have to estimate what the need is likely to be for cardiology, neurology, endocrinology, nephrology, gastroenterology, chest medicine, and so on over the next two or three decades.

Geriatric medicine is sure to need more doctors, and probably neurology and rheumatology, too. Chest medicine and cardiology may be more doubtful. Dermatology ought to increase. Gastroenterology has probably filled up with sufficient consultants, but in 20 or 30 years those who are appointed now will be retiring. These are all imponderables, and each person will have his own vision of what the future might hold in store, yet that vision must determine something of the planning now. Medicine has been taken as the example, but similar considerations apply to surgery and its specialties and all other medical subjects.

Greater use of high technology may increase the numbers of doctors needed in various specialties, as has happened in clinical pharmacology and immunology. On the other hand, the advent of antituberculous drugs nearly swept chest medicine, as then conceived, off the map. Cardiac surgery nearly went the same way when the number of cases of rheumatic heart disease fell, but it recovered by diverting its attention to degenerative disease. Simple, straightforward chemotherapy of cancer, which is possible over the next few decades, might make an enormous impact on the practice of surgery and radiotherapy. It is anybody's guess whether the techniques used in these disciplines might increase or decrease as a result. Trauma and degenerative diseases, as well as mental illness, are likely to be with us for a long time, not yielding too rapidly to high technology.

In the next article I shall end the discussion on a career as a consultant, and then go on to general practice.

A patient who suffered badly from athlete's foot in the past swabs his toes liberally every day with methylated spirit. Are there any long-term ill effects from possible absorption of methyl alcohol?

Constant topical contact of a patient's athlete's foot with methylated spirits would not produce any systemic problems whatsoever. There is the risk of primary irritant dermatitis as a result of the dehydrating effect of the spirit on the stratum corneum. This could result in cracking of the skin with secondary bacterial infection. There is no risk, however, of systemic absorption from such a small area. Methyl alcohol can be absorbed through large areas of skin and through mucous membranes, producing systemic problems such as tracheitis and bronchitis. Inhalation of the vapour can also irritate the mucous membranes of the eye and nose.—W J CUNLIFFE, consultant dermatologist, Leeds.

A middle-aged patient has switched from smoking 60 cigarettes a day to chewing a dozen 2 mg pieces of Nicorette gum. Is this an advantageous change?

Most authorities agree that components of smoke other than nicotine are probably responsible for most of the adverse effects of smoking on health, particularly for respiratory disease and cancers associated with smoking. Nicotine, probably through the release of catecholamines, has the effect of increasing heart rate and blood pressure. In the case of the inhaling smoker the transfer of nicotine to the blood stream is very efficient, with the result that pulse doses of nicotine coinciding with each inhalation pass rapidly into pulmonary capillaries and shortly thereafter reach the chemoreceptors of the aortic and carotid bodies via the systemic bloodstream. After ingestion most nicotine is converted into cotinine or other pharmacologically inactive metabolites before it reaches the systemic circulation, and the nicotine that does reach the bloodstream does so in a steady stream rather than in pulse doses. Although pharmacologically active plasma concentrations of nicotine—for instance up to 50 ng/ml—may be achieved by sucking nicotine-containing gum,[1 2] pulse-dosing, which some inhaling smokers find pleasurable and beneficial, cannot be mimicked by the oral administration of nicotine. Although desire for the pharmacological effects of nicotine is, for many smokers, an integral part of the smoking habit, other aspects of smoking are, to various degrees, also important. These include the rituals of reaching for a cigarette, preparing one's pipe, lighting up, handling, inhaling and exhaling, etc. Several reports have suggested that smokers tend to adjust the extent to which they inhale the smoke of different cigarettes so as to obtain the dose of nicotine to which they are accustomed. A recent study,[3] however, showed that some smokers modify their inhaling on the basis of tar delivery rather than nicotine delivery. This illustrates that you should not equate the smoking habit solely with the nicotine content of smoke. Thus chewing nicotine-containing gum is unlikely to prove an adequate substitute for smoking in the case of all smokers. Nevertheless, the probably correct answer for the patient in question is, "Switching from 60 cigarettes a day to 12 pieces of gum (2 mg) is not necessarily avoiding all the possible adverse effects of smoking but it is likely to entail reduced risks to health."—F J C ROE, independent consultant in toxicology and cancer research, London.

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